

ORIGINAL ARTICLE

Association of Sleep Quality with Socio-Demographic Characteristics in Elderly Referred to Health Centers in Qazvin, Iran

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ABSTRACT

Background and aim: Sleep disorders are not innately harmful to quality of life, they can induce or complicate physical and mental sicknesses and increase the risk of mortality. The aim of this study was to determine the association of sleep quality components with socio-demographic characteristics in elderly people in Qazvin, Iran.

Materials and Methods: This descriptive cross-sectional study was performed on 400 elderly patients referred to health centers in Qazvin. Data were collected by using a demographic questionnaire and the Pittsburgh sleep quality index (PSQI). Data were analyzed by SPSS 19 software, descriptive and inferential statistics (Mann-Whitney, Chi-square, logistic regression).

Results: The prevalence of poor sleep quality was 80%. Statistically significant difference were observed between total global PSQI score and economic condition ($p < 0.03$) and had chronic physical disease ($P < 0.001$). Highest component scores was sleep latency (1.55 ± 1.06) and lowest was habitual sleep efficiency (0.16 ± 0.57). Older women had worse sleep quality compared with older men ($P < 0.05$). Multivariate logistic regression model indicated that female sex is associated with greater tendency towards poor sleep quality ($OR = 1.78$, $95\% CI = 1.08-2.94$, $P = 0.022$).

Conclusion: This study provides evidences that poor sleep quality was high among the elderly of Qazvin. It seems sleep quality assessment of older adults is necessary to identify the factors affecting sleep quality and to adopt appropriate measures and strategies to eliminate or reduce the effect of these factors.

Keywords: elderly, sleep quality, community health centers

INTRODUCTION

Sleep is a basic need of human being because it assists the body to relax and repair, maintain appropriate circadian rhythm and preserve energy for daily living (Azri et al., 2016). Insufficient sleep can increase fatigue and

unrestrained daytime sleepiness. Sleep complications have an adverse effect on mental and physical health, impair the quality of life and increase the healthcare expenses. Quality of sleep will finally influence energy, emotional balance and health. Therefore, poor sleep quality and sleep disorders such as insomnia can undermine the quality of life (Azri et al., 2016). As a result of aging, changes such as decreased efficiency and total sleep time and increased superficial sleep take place, thereby influencing the quantity and quality of sleep (Mendoza-Meléndez et al., 2016).

Sleep disorders in old age are prevalent and have been known (Wu, Tung-Ping Su, Chin-Lung Fang, & Mei Yeh Chang, 2012). Approximately 50% of the adults aged

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>65 are sleep disorders and have been reported at least one chronic sleep complaint, the most common being inability to stay asleep at night (Chein & Chen, 2015, Landry, Best, & Ambrose, 2015, Smyth, 2008). So that, Park et al. reported 60% of the elderly had poor sleep quality (Park, Yoo, & Bae, 2013). Sleep disorders in the elderly can be caused by various reason, such as medical disorders, atypical sleep-wake patterns, reduced amount of sleep or poor sleep quality. it should be noted that so Sleep disorders have resulted in the poor quality of life , including induced or complicate physical and mental sicknesses and increase the risk of mortality (Smagula, Stone, Fabio, & Cauley, 2016);besides Poor sleep quality in old age is caused by environment, chronic disease, pain and sleep disturbance and too contributes cardiac illness, depression, falls and accidents. Recent findings show sleep quality plays a key role in maintaining cognitive function in elderly (Landry, Best, & Ambrose, 2015). Therefore, it is highly important to consider sleep quality and to identify sleep disorders among the elderly.

Knowledge the quality of sleep in the elderly and identification of the factors affecting it will be helpful to adopt appropriate strategies to wipe out or decrease the impact of these factors. However, there is very little, inadequate and indecisive data regarding sleep quality and sleep quality predictors among older people with different levels of cognitive functioning in an institution in Iran. Hence, this study was conducted to determine the association of sleep quality components and socio-demographic characteristics in elderly people in Qazvin, Iran.

METHOD

This descriptive survey was performed on a representative sample of community-based individuals aged 60 years and older in Qazvin city, Iran. For calculating sample size were applied the following formula:

$$n = \frac{(Z_{1-\alpha/2})^2 * P(1-P)}{d^2} = \frac{4 * 0.5(1-0.5)}{(0.05)^2} = \frac{1}{0.0025} = 400$$

In this formula Considering p as prevalence of sleep problems (49.4%)(10) (Nazifi et al., 2014); Test

confidence and test power are considered respectively; 95% and 0.05, the least number of the samples was estimated 400 were selected by multistage cluster random sampling method based on the number of elderly population in an urban health center. Participants aged 60 years or over (Noroozian, 2012) , ability for verbal communication to response the questions and without a history of cognitive and mental diseases and disability were included to the study; so written informed consent was gained from all participants. For data gathering all participants were interviewed face to face by trained two nurses at health center. Those who older participants were not available for interview at their home for another appointment. Because elderly people have at least one chronic disease such as arthritis, high blood pressure, Diabetes, cardiovascular diseases, Musculoskeletal disorders, Neurological diseases, sensory disorders and ... (Barry, 2000), (Pishkar Mofrad, Jahantigh, Arbabisarjou, 2015) Chronic disease of the participants were recorded using medical disease list. The scale applied to measure sleep quality was the Pittsburgh sleep quality index (PSQI) (Smyth, 2008; Nazifi et al., 2014). The PSQI is a validated tool that contains 19 questions on multiple dimensions that assess sleep quality and problems in the past month. This questionnaire consist of seven components score on a 0-3 scale: subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, use of sleep medication and day time dysfunction. The sum of scores of the above seven component scores presents a global PSQI score with a scope of 0-21 points. A lower global PSQI score showed good sleep quality and a global score PSQI score higher than 5 was defined as poor sleep quality (Buysse et al., 1991).

Data were recorded as mean \pm standard deviation (SD) or number (percent). The PSQI factors were compared between male and females using Mann Whitney U test. Chi-square test was used for analysis of categorical variables. A logistic regression analysis was used to examine the association of sleep status and demographic variables. P-values less than 0.05 were considered as statistically significant.

RESULTS

Of 400 older participants, 194 (48.5%) were males and 206 (51.5%) were females. Mean age was 67.48 ± 7.09 years, The majority of the subjects were in the 60-65 age groups, married (71.5%); Among the participant, 51.8% were living with wife, and. Only 18% had received a high school education or above. Most (84.5%) of the subjects had a chronic physical disease. With regard to economic condition, 87.8% were Independent.

The total global PSQI score was 7.11 ± 3.04 . The prevalence of poor sleep was 80%. Mean of sleep duration was 5.81 ± 1.61 hours in males and 5.79 ± 1.76 in females. Comparison of the sleep qualities of the older subjects and their socio-demographic characteristic are presented in table 1. Statistically significant difference were observed between total global PSQI score and economic condition ($p < 0.03$) and had chronic physical disease ($P < 0.001$). There was no statistically significant

difference between the total global PSQI score and age, education, marital status living status and duration of menopause.

Total PSQI scores and its seven components of the study subjects by sex are shown in table 2; as shown in the table highest component scores was sleep latency (1.55 ± 1.06) and lowest was Habitual sleep efficiency (0.16 ± 0.57). Women older had worse sleep quality compared with older men ($P < 0.05$). No significant differences were found between males and females in sleep duration, habitual sleep efficiency, sleep disturbances and use of sleep medication. Female older had longer sleep latency, and more day time dysfunction. Multivariate logistic regression model indicated that female sex is associated with greater tendency towards poor sleep quality (OR=1.78, 95% CI=1.08-2.94, $P=0.022$), no association was found between age, education, disease or living condition and poor sleep quality (table 1) (table 2).

Table 1: Mean Scores of PSQI according to demographic variables of the elderly subjects

	Total PSQI Score		P-Value
	n (%)	Mean \pm SD	
Marital status *			
Single	114 (28.5)	7.33 ± 3.67	0.10
Married	286 (71.5)	6.51 ± 3.18	
Age *		7.01 ± 3	
60-65	206 (51.5)		0.45
66-70	94 (23.5)	6.87 ± 3.01	
71-75	47 (11.8)	7.82 ± 3.21	
76-80	27 (6.8)	7.66 ± 2.98	
>80	26 (6.5)	6.88 ± 3.12	
Education *			
Illiterate	121 (30.2)	7.28 ± 2.97	1.67
Primary	154 (38.6)	7.47 ± 2.94	
High school	53 (13.2)	7.04 ± 3.81	
Academic	72 (18)	6.45 ± 3.03	
Living condition *			
Alone	57 (14.2)	7.80 ± 3.59	0.44
With wife	207 (51.8)	6.92 ± 2.83	
With children	133 (33.2)	7.13 ± 3.09	
With relatives	3 (0.8)	6 ± 0.0	
Disease **			
Yes	338 (84.5)	7.35 ± 3.04	<0.001
NO	62 (15.5)	5.77 ± 2.63	
Economic situation**			
Independent	351 (87.8)	7 ± 3.04	0.03
Dependent upon others	49 (12.2)	7.91 ± 2.92	

*Kruskal Wallis Test, **Mann Whitney